

# PROJECT FACT SHEET

CONTRACT TITLE: Green River Formation Water Flood Demonstration Project -- Class 1

ID NUMBER: DE-FC22-93BC14958

CONTRACTOR: Lomax Exploration Company

B & R CODE: AC1010000

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CONTRACT PERFORMANCE PERIOD:

10/21/1992 to 10/20/1995

PROJECT SITE:

Denver, CO

Roosevelt, UT

PROGRAM: Field Demonstrations

RESEARCH AREA: Class 1

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	1,818	2,564	4,382
FISCAL YR 1996	0	0	0
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	1,818	2,564	4,382

OBJECTIVE: This project is a waterflood demonstration in the Green River Formation of the Uinta Basin, which has rarely been waterflooded. An evaluation of the successful Monument Butte waterflood will be performed, and based on this information, waterfloods will be initiated in nearby Travis and Boundary units. The project will also develop new techniques to characterize reservoir heterogeneity and the response of the reservoir to waterflood.

## METRICS/PERFORMANCE:

Products developed: Waterflooding technology for high paraffin oil reservoirs.

**PROJECT DESCRIPTION:**

**Background:** The proposed work is for a waterflood demonstration project in the fluvial-deltaic Green River Formation located in the Uinta Basin, Utah. Lomax Exploration has successfully implemented a waterflood on their Monument Butte property that has increased production from 5% (primary) to over 20% of the oil in place. This flood has been successful even though the reservoir is heterogeneous and low energy, and the crude oil contains high amounts of paraffin.

**Work to be performed:** This project is a waterflood demonstration project in the Green River Formation in the Uinta Basin. Lomax has successfully implemented a waterflood on their Monument Butte property which has a heterogeneous, low energy reservoir with a high paraffin crude oil. Production of about 5% of the Original Oil In Place (OOIP) from primary methods was increased through the waterflood to an estimated recovery of 20% OOIP. The project will: 1) perform a technical evaluation of the successful Monument Butte waterflood; 2) based on this information, extend the successful waterflood to nearby Travis and Boundary project areas; 3) develop new techniques to characterize Uinta basin reservoirs and 4) transfer the technology to operators, regulators, government agencies, and the financial community.

**PROJECT STATUS:**

**Current Work:** Field and lab work is proceeding on schedule. Detailed reservoir simulations for the Travis unit were continued. Total Travis Unit oil production has increased 10% and total gas production has increased 9% since inception of the project in October 1992.

**Scheduled Milestones:**

Complete Monument Butte Reservoir Characterization	06/94
Complete Travis/Boundary Geologic and Engineering Models	09/94
Drill and Complete Boundary Unit Development/Injection Wells	03/95
Complete Monument Butte, Travis and Boundary Case Studies	10/95
Conduct Field Trip and Conference	10/95

**Accomplishments:** The following accomplishments have been started or completed: 1) The Monument Butte #10-34 has been completed as an oil producer. The completion of this well has set up at least five to six additional well locations including several water injectors. This activity will increase unit oil reserves and production; 2) The Travis #14A-28 has been completed as an oil producer. The well was completed in the Lower Douglas Creek and "D" sand intervals of the Green River Formation. Based upon logging, the additional productive sand (the "D" sand) can be water flooded. Due to the completion of the #14A-28, two additional well recompletions have been successfully made in the "D" sand; 3) The Boundary #10-20 well was drilled in April, 1993. The well did not establish sufficient Green River reservoir sands to warrant a completion attempt. The Boundary Unit # 12-21 was spudded on November 11, 1994 and put on production in January of 1995. Additional development wells in the Boundary Unit are planned for March 1995. Reduced injectivity due to paraffin formation near the wellbore caused by cold water injection is being numerically modeled. A surface temperature of injection water around 150 degrees F is predicted to maintain temperatures above the oil cloud point near the well. Experimental injection of hot water was conducted for several months then terminated without results. Microbial treatments are currently being evaluated for paraffin control.